

What is claimed is:

1. A transmitter for transmitting a signal over a communication channel, the transmitter comprising:

5 a block length selector for receiving channel state information about state of the communication channel, and for selecting block lengths that are dependent on the channel state information and that are selected from a group consisting of block lengths having an integral multiple relationship, to produce a schedule of block lengths;

an encoder for receiving information from a source and the schedule of block lengths from the block length selector, and encoding the information from the source into an encoded signal using the schedule of block lengths; and

an interface for transmitting the encoded signal over the communication channel.

2. A transmitter as claimed in claim 1, wherein the block length selector assembles the block lengths in the schedule of block lengths in frames that each total a maximum block length.

20 3. A receiver for receiving a signal transmitted over a communication channel, the receiver comprising:

a block length selector for receiving channel state information about state of the communication channel, and for selecting block lengths that are dependent on the  
25 channel state information and that are selected from a group

consisting of block lengths having an integral multiple relationship, to produce a schedule of block lengths;

an interface for receiving the signal from the communication channel; and

5 a decoder for receiving the signal from the interface and the schedule of block lengths produced by the block length selector, and decoding the signal using the schedule of block lengths.

4. A receiver as claimed in claim 3, further comprising a channel state estimator for assessing state of the channel based on the signal from the communication channel, and producing the channel state information accordingly.

5. A receiver as claimed in claim 4, further comprising a channel state predictor for making predictions on future conditions of the communication channel based on the channel state information from the channel state estimator, the block length selector producing the schedule of block lengths based on the predictions.

20 6. A communication system for performing transmission and reception of a signal over a communication channel, the communication system comprising:

a channel state estimator for assessing state of the communication channel, and producing channel state  
25 information accordingly;

a block length selector for receiving channel state information from the channel state estimator, and for selecting block lengths that are dependent on the channel state information and that are selected from a group consisting of block lengths having an integral multiple relationship, to produce a schedule of block lengths;

a transmitter including:

an encoder for receiving information from a source and the schedule of block lengths from the block length selector, and encoding the information from the source into an encoded signal using the schedule of block lengths; and

a transmission interface for transmitting the encoded signal over the communication channel; and

a receiver including:

a reception interface for receiving the encoded signal from the transmission interface across the communication channel; and

a decoder for receiving the encoded signal from the reception interface and the schedule of block lengths produced by the block length selector, and decoding the signal using the schedule of block lengths.

7. A communication system as claimed in claim 6, wherein the channel state estimator is provided in the

receiver, and the block length selector is provided in both the transmitter and the receiver, the channel state estimator sending the channel state information to the block length selector in the transmitter across a feedback channel, and sending the channel state information to the block length selector in the transmitter.

8. A communication system as claimed in claim 7, wherein:

the receiver further includes a channel state predictor for making predictions on future conditions of the communication channel based on the channel state information from the channel state estimator, the block length selector of the receiver producing the schedule of block lengths based on the predictions; and

the transmitter further includes a channel state predictor for making prediction on future conditions of the communication channel based on the channel state information from the channel state estimator, the block length selector of the transmitter producing the schedule of block lengths based on the predictions.

9. A communication system as claimed in claim 6, wherein the block length selector assembles the block lengths in the schedule of block lengths in frames that each total a maximum block length.

10. A method of transmitting a signal over a

communication channel, comprising:

receiving channel state information about state of the communication channel;

selecting block lengths that are dependent on the channel state information and that are selected from a group consisting of block lengths having an integral multiple relationship, to produce a schedule of block lengths;

receiving information from a source;

encoding the information from the source into an encoded signal using the schedule of block lengths; and

transmitting the encoded signal over the communication channel.

11. A method receiving a signal transmitted over a communication channel, comprising:

receiving channel state information about state of the communication channel;

selecting block lengths that are dependent on the channel state information and that are selected from a group consisting of block lengths having an integral multiple relationship, to produce a schedule of block lengths;

receiving the signal from the communication channel; and

decoding the signal using the schedule of block lengths.

12. A method of performing transmission and reception

of a signal over a communication channel, comprising:

assessing state of the communication channel, and  
producing channel state information accordingly;

5 selecting block lengths that are dependent on the  
channel state information and that are selected from a group  
consisting of block lengths having an integral multiple  
relationship, to produce a schedule of block lengths;

receiving information from a source;

10 encoding the information from the source into an  
encoded signal using the schedule of block lengths;

transmitting the encoded signal over the communication  
channel;

receiving the encoded signal from across the  
communication channel; and

15 decoding the encoded signal using the schedule of  
block lengths.